CASE STUDY:
DIGITAL YUKON USED FOR HEAVY-CAPACITY OFF-ROAD TRUCK WEIGHING WITH AUTOMATIC DATA STORAGE

The specs on this installation are enough to make any heavy-capacity scale aficionado salivate: twin digital YUKON off-road truck scales (for haul trucks weighing up to 300 tons) and a Satellite 825D indicator connected to a long-range RFID tag reader for completely-unattended data transactions. The system consists of two checkered steel deck 30 ft x 12 ft YUKON off-road truck scales with digital SmartCells installed side by side to make up a 30 ft x 24 ft weighbridge that is used to weigh CAT trucks at a construction company in Montana. The 825D digital indicator is set up as a single scale with a capacity of 300 tons x 0.02 tons, and the offroad trucks typically weigh in the 200 ton gross weight range.

The YUKON off-road truck scale features an extremely-high, 70-ton concentrated load capacity (CLC) and extra-thick checkered steel deck, meaning it can withstand a dense amount of weight in a tight circumference that is inherent in the CAT haul trucks used at this site. The large trucks used at this job site support their heavy loads on a relatively few number of axles thus concentrating the total load in a few small footprints on the scale platform. A substantial CLC rating is necessary to ensure that a loading pattern produced by trucks like these are accurately measured.

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Cardinal®
Cardinal Scale Manufacturing Co.

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The customer required an automatic weighment so that the off-road dump trucks simply pull onto the scale and the system IDs the trucks and stores the weight. The embedded traffic light of the stainless steel Cardinal Scale SB600 remote display signals the driver to enter the scale and then exit it once the transaction is stored.

The weight indicator used in this application is a Cardinal Scale Satellite 825D with digital scale input, full-color graphics display, weatherproof enclosure, and rain hood. There was not a printed receipt necessary, so the Satellite 825D's ID storage application stores all transactions digitally within its memory. The customer is using the remote indicator capabilities of the 825D to access it from their office and upload the transaction file.

The scale is equipped with a long-range RFID tag proximity reader located in the middle of the truck scale. The reader is used to ID each truck and automatically store the weighment without driver/operator intervention. Traffic across the scale is bi-directional, so the construction company's trucks are equipped with two like-numbered RFID tags located on each side of the truck.

The operational steps are set up to automate and minimize the time needed by each truck driver and for the facility to avoid staffing the truck scale. When the SB600 remote display's 6-inch-high traffic light is green, the truck driver knows to pull onto the scale, and once the display's traffic light turns red, the truck drivers know to stop. The RFID tag is then read by the long-range reader, which has a proximity range of up to 15 feet. Once the weighment delay timer expires and motion ceases, the truck weight is acquired. If the truck tare weight is stored within the 825D indicator's memory, the net weight is calculated and the transaction is stored. Otherwise, first pass weighment data is stored. The truck then exits the scale, unloads or loads, and returns for a second weighment to complete the transaction. The system resets and is ready for the next weighment. The entire unmanned transaction is performed without a scale operator necessary.

Using the Satellite 825D's remote indicator application, the 825D can be monitored, truck ID's can be added/edited, and the transaction file can be uploaded from the office via the construction company's Ethernet network.

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